

What is claimed is:

1. A method of surface treatment of a titanium metal wherein plasma carburizing is carried out in an atmosphere comprising a carburizing gas having the molar ratio of hydrogen atoms (H) to carbon atoms (C) adjusted to $1 \leq H/C \leq 9$ at a pressure of 13-400 Pa and a temperature of 400-690 °C.
2. A method of surface treatment of a titanium metal comprising the steps of heating the titanium metal to a temperature of 400-690 °C in a cleaning gas atmosphere containing hydrogen gas, subjecting the surface of the titanium metal to cleaning by applying a DC voltage of 200-1500 V, and plasma carburizing in an atmosphere comprising a carburizing gas having the molar ratio of hydrogen atoms (H) to carbon atoms (C) adjusted to $1 \leq H/C \leq 9$ at a pressure of 13-400 Pa and a temperature of 400-690 °C.